IN THE CLAIMS

1. (currently amended) A multihull craft comprising a ~~principal~~ central hull of displacement type having a length, a beam, and a central length to beam ratio and a lateral hull ~~of semi-planning type~~ having a length, a beam, and a lateral length to beam ratio, with said lateral ratio being substantially less than said central ratio.

2. (currently amended) The craft of claim 1 in which said lateral hull ~~is of the semi displacement type~~ provides substantial dynamic lift when said craft operates at a high-speed regime during which the speed / length ratio of said lateral hull is substantially higher than the speed / length ratio of said central hull.

3. (currently amended) The craft of claim 1 which said lateral hull is of the transonic hull type, having a length, a bow, side surfaces, a stern, a hydrostatic beam adjacent said stern substantially larger than the hydrostatic draft of adjacent said bow, with said sides being substantially free of shoulder, midbody and rear quarter curvatures in plan view.

4. (currently amended) The craft of claim 3 ~~claim 1~~ in which all hulls are of the transonic hull type.

5. (currently amended) The craft of claim 1 in which lateral wing support extends between said lateral hull and said principal hull above water level.

6. (currently amended) A multihull configuration comprising in combination a ~~principal~~ first hull having a length and side surfaces; a ~~lateral~~ second hull [;] having a length and side surfaces, ~~and;~~ a supporting structure therebetween above water level ~~with~~ said craft having outboard side surfaces substantially parallel to each other and aligned in a low drag disposition with the direction of motion of said craft, with the remaining sides converging in planview at water level with

each other in a rearward direction capturing therebetween water flow tending to have a raised level; hydrodynamics impellers mounted on said supporting structure between opposite converging side surfaces of said hulls, to capture ~~the rearward flow between said principal and lateral hulls~~ and impel said rearward flow in a rearward direction at a ~~higher~~ increased speed [:] tending to lower the water level of the water flow upstream of said impeller between said convergent sides in a favorable interfering relationship.

7. (currently amended) A man powered craft having a principal body with a body length and a first hydrostatic beam and a lateral elongated body articulated at an axis of rotation on ~~a side of~~ said principal body approximately parallel to said body length said elongated body adapted to be ~~moved~~ rotated about said articulation between an upper level disposition downwards by approximately 90° degrees to ~~and~~ a lower level disposition in which said craft has a second hydrostatic beam substantially larger than said first beam to increase the lateral stability of said craft. ~~the volume of said lateral body can generate a lateral change of buoyant forces when said principal body is heeled.~~

8. (currently amended) A slender man-powered craft having a hull and an aerodynamic impeller mounted generally above said hull free of water contact, said impeller being adapted to be driven by an electric motor powered by batteries for selective use by said man.

9. (currently amended) The craft of claim 8 ~~having solar cells to~~ further characterized in having a slender principal hull with a body area in planview, a lateral hull connected to said principal hull by a laterally extending surface above water level, said surface having a large area with a root chord no less than approximately the span of said surface, said large area of said surface being no less than approximately said body area, with said large area having solar panels for solar cells of sufficient total panel area as to capture substantial solar energy to recharge said batteries.

10. (currently amended) The craft of claim 9 in which said craft is a trimaran with lateral surfaces formed as ~~has~~ a wing of large chord, and large area above water supporting lateral hulls, said wing having approximately an overall span no less than half of the length of said principal hull. ~~with said area providing substantial additional area for increased number of solar cells.~~

11. (canceled).

12. (canceled).

13. (canceled).

14. (canceled).

15. (canceled).

16. (new) A multihull vessel having in combination at least two Transonic Hulls, with each of said transonic hull characterized in having:

a longitudinal length, a bow, a stern side surfaces and a lower surface;

a hydrostatic waterplane with sides, which are substantially free of shoulder, midbody, and rear quarter curvatures;

a maximum hydrostatic draft adjacent said bow and a maximum beam adjacent said stern;

said maximum beam being substantially larger than said maximum draft;

with each of said hulls having when in forward motion a hydrodynamic regime with a hydrodynamic field having surface rays which extend rearwardly in top view in a generally triangular pattern adjacent the sides of each of said hulls, with apex adjacent the bow of said hulls;

with the combined hydrodynamic field of said transonic hulls in said hydrodynamic regime being free of mutual interference between said rays within the water region between said transonic hulls.

17. (new) The vessel of claim 16 with power means for forward propulsion, which under a first power level, said hydrodynamic field has a supercritical displacement regime in which said undersurfaces of said hulls have a negative angle relative to the remote waterplane, said undersurface

being subjected to propulsive pressure, with wetted side surface areas which generate frictional resistance to forward motion.

18. (new) The vessel of claim 17 in which under a higher second power level, said hydrodynamic field has a hypercritical regime in which said underfaces of said hulls have a substantially smaller angle relative to remote waterplane, with reduced wetted side surface areas of said hulls.

19. (new) The vessel of claim 18 which under a higher third power level, higher than said second level, said hydrodynamic field has a transplanar regime in which said smaller angle is positive, with said lower surfaces of said hulls having a wetted area portion substantially larger than the remaining lower surface area portion which is generally free of contact with and above local water level.

20. (new) The vessel of claim 19 in which rearward surface water flows along, adjacent and generally parallel to the sides of said hulls in said transplanar regime.

21. (new) A multihull vessel having in combination at least two hulls of approximately equal length, an overall beam, a water region between said hulls, and propulsive means, said vessel being characterized in that

(a) each of said hulls has a bow, longitudinal length, a stern, side surfaces, and a beam,

(b) with the combined side surface of each of said hulls laterally facing said mid water region forming in plan view the sides of a channel region therebetween, with an intake mouth adjacent said bows of said hulls and a smaller exit mouth adjacent said stern,

(c) said propulsive means on said vessel having water impellers located between said hulls, with said impeller means accelerating local flow rearward,

(d) with the forward motion of said vessel causing a contracting flow stream in top view within said

channel region tending to form a higher surface level which is diminished downwards by said rearwardly accelerated flow generated by said impeller means.

22. (new) The vessel of claim 21 in which said impeller means comprises a group of multiple impellers located adjacent said exit mouth.

23. (new) The vessel of claim 21 in which each of said hulls is a transonic hull having side surfaces which at water level are free of midbody shoulder and quarter curvature, with the outboard side surface of said hulls being substantially parallel to each other which, together with said intake mouth and a total vessel beam adjacent said sterns, define an outer perimeter which is substantially rectangular, and in that the inward side surfaces of said hulls, together with said intake mouth and said exit mouth define an inboard perimeter which is substantially trapezoidal, with the width of said intake mouth being larger than the width of said exit mouth, and with said propulsive means accelerating the flow within said inward perimeter in a rearward direction.

24. (new) A multihull vessel having a right and left hulls comprising:

(a) said vessel having a longitudinal axis generally equidistant and between said hulls,

(b) each of said hulls having a bow, a stern, and a longitudinal axis between the mid point of said bow and the mid point of its stern,

(c) with the orientation of said longitudinal axis of said hulls having a small toe-out angle in planview relative to said longitudinal axis of said vessel, whereby the water flow between said hulls can be accelerated rearwardly,

(d) with power means with impeller means between said hulls to accelerate said flow rearwardly, whereby propulsive efficiency is increased and overall drag is reduced.

25. (new) A multihull vessel having:

two hulls connected by a central body above waterplane;

power means to propel said vessel;

each of said hulls having a bow, an elongated hull shape with side surfaces, and a stern, with a beam width between said side surfaces;

said multihull further characterized in that the outer perimeter defined by the out board surfaces of said hulls, the athwarship length between said bows and the athwarship length between the outboard edges of said sterns being substantially rectangular;

with the inward perimeter defined by the inboard surfaces of said hulls, a first athwarship length between said bows, and a second athwarship length between the inboard edges of said sterns being substantially trapezoidal, with said first length being larger than said second length; and

said power means having impeller means located between said inboard surfaces of said hulls in planview, accelerating a water flow downstream across said inward perimeter.

26. (new) A multihull vessel having:

(a) a central hull with a longitudinal axis, a bow, side surfaces, a stern, and propulsion means;

(b) right and left lateral hulls outboard of said side surfaces of said central hull;

(c) with each of said outboard hulls having a bow, a stern, outboard lateral surfaces, and inboard lateral surfaces facing said sides of said central hull;

(d) said multihull further characterized in that a first perpendicular distance between said longitudinal axis and each bow of said lateral hulls is larger that a second perpendicular distance between said longitudinal axis and the inboard lateral surface of said lateral hulls adjacent the stern of said lateral hulls;

(e) and in that said propulsion means have impeller means to the right and left of said center hull which accelerate water flow rearward between said lateral hulls and said central hull.

27. (new) A multihull having a principal hull, a lateral hull, propulsion means, with each of said hulls having:

a longitudinal length, a bow, a stern, side surfaces and a lower surface;

a hydrostatic waterplane with sides, which are substantially free of shoulder, midbody, and rear quarter curvatures (pg. 36, line 1);

a maximum hydrostatic draft adjacent said bow and a maximum beam adjacent said stern;

said maximum beam being substantially larger than said maximum draft;

and in that at vessel speed in which said outboard hulls operate in a regime no less than hypercritical with a speed/length ration no less than approximately 3.5, said principal hull operating principally in displacement mode in a supercritical speed/length ration no greater than approximately 2.5.

28. (new) A vessel having a forward end, a midbody, and a longitudinal length; said vessel having a rearward end, and a lower surface, with said lower surface having an athwarship downstream border;

a first movable surface element adjacent and to the rear of said downstream border, said first movable surface having a forward edge with a first articulation on said downstream border, a first rearward edge, and a first longitudinal length therebetween; and

a second movable surface element adjacent and to the rear of said first surface element having an upstream edge with a second articulation on said rearward edge of said first surface element, a second rearward edge, and a second longitudinal length therebetween.

29. (new) The vessel of claim 28 further characterized in that the longitudinal length of said second surface element is substantially smaller than the longitudinal length of said first surface element.

30. (new) The vessel of claim 29 further characterized in that said second surface

element has an upward protrusion, with connecting link means extending between said upward protrusion and said rearward end of said vessel at a vertical location above said downstream border of said lower surface of said vessel.

31. (new) The vessel of claim 30 in which control means are provided to cause angular motion of said first surface element relative to the said lower surface of said vessel.

32. (new) The vessel of claim 31 further characterized in that the angular motion of said second surface element relative to said first surface element under the mechanical action of said link is in opposite direction to the angular motion of said first surface element relative to said lower surface of said vessel.

33. (new) The vessel of claim 30 further characterized in that the vertical distance between said second articulation and said link is approximately equal to the vertical distance between said first articulation and said link.

34. (new) The vessel of claim 30 in which the opposite angular deflections of said first and second elements have approximately equal magnitude.

35. (new) A vessel having a lower downstream border; a first trailing surface mounted on said lower border; with a second surface mounted on and downstream of said first surface.

36. (new) The vessel of claim 35 further comprising control means connecting said first trailing surface to said boat and mechanical means connecting said second surface to said boat.

37. (new) The vessel of claim 36 in which angular deflection of said first surface caused by said control means generates opposite angular motion of said tab under the action of said

mechanical means.

38. (new) The vessel of claim 37 in which said opposite angular deflections are approximately of the same magnitude.

39. (new) The vessel of claim 37 in which the ratio of widths of said second surface to said first surface is no greater than approximately 0.20.